Patent claims

1. Method of determining in a non-invasive manner the trade classification, the trade value, the market value and the quality of a body of a slaughtered animal on the basis of optical image processing, wherein in the image region (1) in the ham and loin region lengths, angles, areas, brightness and/or colour information are determined with all details, the total weight of a carcass and data from results of tests on cut pieces with respect to fluctuating yields of individual pieces of non-homogenous bodies of slaughtered animals are recorded and used, characterised in that the result data, obtained with tests on cut pieces of a sufficient number of carcasses, of weight percentages from yields of individual pieces with the characteristic parameters and measured values determined from two halves of a carcass in the ham and loin region are correlated together using the total weight and relational data are obtained therefrom and
that in the active slaughtering operation in order to estimate the yields of individual pieces a simulation calculation is performed with the available relational data taking into consideration the total weight of two associated halves of a carcass and the characteristic parameters and measured values determined for this specifically in the ham and loin region.

2. Method of determining in a non-invasive manner the trade classification, the trade value, the market value and the quality of a body of a slaughtered animal on the basis of optical image processing, wherein in the image region (1) in the ham and loin region lengths, angles, areas, brightness and/or colour information are determined with all details, the total weight of a carcass and data from results of tests on cut pieces with respect to fluctuating yields of individual pieces of non-homogenous bodies of slaughtered animals are recorded and used, characterised in that the result data, obtained with tests on cut pieces of a sufficient number of carcasses, of weight percentages from yields of individual pieces with the characteristic parameters and measured values determined from two halves of a carcass in the ham and loin region are correlated together and relational data are obtained therefrom and
that in the active slaughtering operation in order to estimate the yields of individual pieces a simulation calculation is performed with the available relational data of a carcass and the characteristic parameters and measured values determined for this specifically in the ham and loin region.

3. Method as claimed in claim 1 or 2, characterised in
that in a part step of the image evaluation in order to perform an online calculation of the muscle-

meat percentage (MF%) a straight line (9) with the direction of the straight section of the spinal column is placed at the upper (dorsal) edge of a vertebral canal (8) and on this straight line a perpendicular (10) is created at the level of a front (cranial) end (11) of a musculus glutaeus medium MGM (5) and its length of extension as the shortest connection from the front end (11) of the MGM (5) to the upper (dorsal) edge of the vertebrae channel (8) corresponds to the meat measurement (F) as the thickness of the loin muscle and at the level of the thinnest fat layer at the MGM (5) a connection line (12) from the contour of the MGM (5) to the outer contour (2.2) is determined, the length of this extension representing the amount of fat (S) wherein the muscle-meat percentage (MF%) is calculated online from the two terms (F) and (S) in accordance with the two-point method using the specific official formula and subsequently classified into the trade class.

4. Method as claimed in claims 1 or 2 and 3, characterised in that
in parallel with the perpendicular (10), further perpendicular lengths (13) can be calculated on the straight line (9) to the outer contour (2.2), the starting point of which lengths on the straight line (9) lies in each case in the virtually perpendicular extension of the layer between the vertebrae (6), wherein the perpendicular lengths (13) are cut from an inner contour line (14) of a fat area (3), so that part lengths are created in the muscle meat and the fat, their lengths are used as fat and muscle lengths and their relationship with respect to each other are used to evaluate the cutlets.

5. Method as claimed in claims 2 and 3 and 4, characterised in that
the weight of pieces, such as the ham or the cutlets, are determined directly from the measured values of the image analysis.

6. Method as claimed in claims 1 or 2 and 3 to 5, characterised in
that the average fat thickness over the MGM (5) in the region of the area between the extension of the perpendiculars (10) as far as the outer contour (2.2) and another perpendicular (15) on the straight line (9) at the level of a rear (caudal) end (16) of the MGM (5) are used to evaluate the ham and are used when determining the trade value.

7. Method as claimed in claims 1 or 2 and 3 to 6, characterised in
that statements regarding the belly using a middle panniculus adiposus layer (17) in the cutlet region are provided in the image region (1) from the cranial end (11) of the MGM (5) and the shoulder using ham, cutlet and belly from the other measured values.

8. Method as claimed in claims 1 or 2 and 3 to 7 characterised in that the method when used in butchering operations comprises an implemented self-learning effect with self-consistency checks on the data volume, wherein the results of the weighing of pieces performed during processing are compared with the values provided in the data volume and are supplemented if necessary with other data.

9. Method as claimed in claims 1 or 2 and 3 to 8, characterised in that data volumes expanded by virtue of the self-learning effect are used as an upgrade in small slaughtering operations.

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